

ART. X.—*On a New Species of Graptolitidæ*
(*Temnograptus magnificus*).

(With Plate VI.)

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This graptolite came from the same locality, namely about five miles to the north-east of Lancefield, as *Dictyonema grande*, a new species described by Mr. T. S. Hall, M.A., at the beginning of this year. It was on the occasion of my second visit to this locality that I had the good fortune to procure an almost perfect specimen. This, however, was not the first collected, as on the previous trip, Mr. T. S. Hall obtained two slabs of slate showing the centre of the stock, and a few bifurcations of the stipes, also numerous smaller fragments apparently referable to the same species.

GENUS TEMNOGRAPTUS (Nicholson).

Order—*Hydrozoa*. Sub-order—*Graptolitidæ*. Family—*Dichograptidæ* (Lapworth). Zittel gives the following terse definition of this genus:—"Like *Tetragraptus*, but the four chief branches repeatedly forked in a dichotomous manner—*T. multiplex*, Nicholson."

T. MAGNIFICUS, sp. nov.

Polyp-stock multibrachiate, consisting of numerous strong bifurcating stipes which are symmetrically arranged on the two sides of their origin. Funicle very short, length 1.5 mm., breadth 1 mm., sicula not visible. Both extremities of the funicle divide into two non-celluliferous stipes, which diverge at an angle of 90°, and vary in length from about

1.55 cm. to 5.7 cm.; each of these four stipes bifurcates at an angle of about 70° , and then extends for a length varying from 3.8 cm. to 8.85 cm., when a fourth bifurcation (the first being where the funicle is given off from the sicula) takes place at about 45° . The two following bifurcations take place at smaller angles. The intermediate stipes become somewhat curved, probably owing to their flexuous nature, and vary very much in length in the same individual. The stipes after the last bifurcation are very much the longest, nearly all of them in one specimen being upwards of 20 cm. in length, and even then not showing any terminations. In the same specimen, two stipes seem to terminate at 16.4 cm. and 19 cm. respectively, and two others at 23.4 cm., though one of the latter is somewhat indistinct, owing to the jointing of the rock. No hydrothecæ are discernible until after the fifth bifurcation. The breadth of the stock in the specimen as shown in Fig. 1, on a much reduced scale, is 75.75 cm., but as the growth was probably equal on both sides of the centre, we would have the breadth of the entire stock as not less than 100 cm. The stipes are monopronidian and, where the hydrothecæ are well developed, are 2 mm. broad; the stipes which do not show any hydrothecæ are also about the same width; these measurements may be slightly in excess as they are made from much compressed specimens. The solid axis is plainly visible in the type specimen; and there is no appearance whatever of a central corneous disc. The hydrothecæ are acute, indent the branches for about one-third the width, and are free for a little less than half their length; the upper margin or aperture is slightly concave, and the lower margin is slightly curved, and makes an angle of about 25° with the axis, joining the common canal at a point a little lower than the aperture of the second lower hydrotheca, narrower at the junction with the common canal than at the aperture; hydrothecæ number from 8 to 9 in the centimetre. *Temnograptus magnificus* differs from all other species I have seen described in its enormous size: it is, however, closely related to *T. multiplex*, Nicholson, of the Skiddaw Series, which is characterised by the regularity of its dichotomous branching; but the former differs from the latter in the much greater variation in the length of the stipes between the bifurcations, in the angles at which the corresponding stipes diverge, and in the more crowded hydrothecæ.

The other species to which it is undoubtedly related, are *Graptolithus flexilis*, Hall, *G. rigidus*, Hall, and *G. abnormis*, Hall, of the Quebec Series, but it is easily separable from each of them.

These five species agree in that the hydrothecal-bearing stipes are subdivided, and that there is no central corneous disc present.

I have to acknowledge my indebtedness to Mr. T. S. Hall, M.A., for suggestions on the subject matter of this paper, and to Mr. W. S. Strettle for assistance in quarrying out the specimen.

EXPLANATION OF FIGURES.

PLATE VI.

FIG. 1.—*Temnograptus magnificus*, one-seventh the diameter of the original, drawn from a photographic reduction.

FIG. 2.—Portion of the stipe bearing hydrothecæ (enlarged).

FIG. 3.—Central portion of polyp-stock, natural size.